

# Mineral Industry Surveys

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## MANGANESE IN MAY 2001

In May, reported consumption of manganese ore containing 35% or more manganese, exclusive of that consumed at iron and steel plants, was estimated as 27,000 metric tons (t), which was a decrease of about 4% compared with that for the previous month, according to the U.S. Geological Survey. This brought the year-to-date total to 140,000 t. The figures for May increase to 29,400 t and 152,000 t, respectively, when estimates for annual respondents are added on the basis of 1999 data. Corresponding industry stocks of ore at the end of the month were estimated as 228,000 t, which includes an estimate for annual respondents on the basis of 1999 data. This was a decrease of about 7% compared with the corresponding figure for stocks at the end of April.

Data for domestic consumption and stocks of manganese ferroalloys and metal will appear in a subsequent monthly report.

Foreign trade data for May will appear in a subsequent report. The data for April tabulated in this report indicate that the quantity of manganese metal exported was the least in at least the past 18 years. **Note:** For early availability, the trade data appearing in this report were placed on MINES FaxBack in preliminary form as of June 27. The FaxBack document number for the preliminary May trade data will be 420205.

The Defense National Stockpile Center of the Defense Logistics Agency, U.S. Department of Defense, reported cash disposals of manganese materials from the National Defense Stockpile in May that consisted of 636 t of electrolytic manganese metal and 1,361 t of natural battery-grade ore. All of the metal went to BSI Alloys, Inc., Pittsburgh, PA. The ore disposal resulted from modification of an existing contract.

In Australia in late May, HiTec Energy Ltd. commissioned a demonstration plant for electrolytic manganese dioxide (EMD) at Murdoch University in Perth, Western Australia. This plant is to be operated for about 6 months to prove out the technology of HiTec's Electrofuel Project. After that,

construction of a commercial plant with an EMD annual capacity of 40,000 t is to begin at Port Hedland by the end of the current year (Metal Bulletin, 2001a).

In China late in May also, the Xiangtan Manganese Industry Group Co., Ltd., indefinitely suspended its blast furnace production of high-carbon ferromanganese, which was the latest of a number of cutbacks of blast furnace production of ferromanganese in China (TEX Report, 2001). Although Xiangtan's action would remove from the market about 8,000 t of ferromanganese each month, it was reported that other producers in the area were raising their production and making up any shortfall (Metal Bulletin, 2001b). In 1999, Xiangtan Group produced about 99,000 t of ferromanganese as well as 5,800 t of manganese metal and 5,000 t of EMD.

In Mexico, in another action that affected supply of manganese ferroalloys, Cía. Minera Autlán initiated a program of consolidating ferroalloys production at its Tamos plant (Veracruz State). Production at the Gomez Palacio plant (Durango State) and the Teziutlan plant (Puebla State) was being shut down and the furnaces at these plants moved to the Tamos plant. The move was to be completed in 2004. Autlán's ferroalloy output this year was expected to be about 70% of that for 2000 (Ryan's Notes, 2001). On this basis, Autlán's production in 2001 can be projected as about 140,000 t.

## References Cited

- Metal Bulletin, 2001a, HiTec commissions manganese demonstration plant in Perth: Metal Bulletin, no. 8580, June 4, p. 8.  
———2001b, Plant closure fails to rock Chinese FeMn market: Metal Bulletin, no. 8586, June 25, p. 8.  
Ryan's Notes, 2001, Minera Autlan to close two plants: Ryan's Notes, v. 7, no. 21, May 21, p. 2.  
TEX Report, 2001, Cutback of Fe-Mn production in China is enlarging, Xiangtan suspended to operate blast furnaces: TEX Report, June 19, p. 12.

TABLE 1  
SELECTED U.S. FOREIGN TRADE IN MANGANESE 1/

(Metric tons, manganese content) 2/

|               | Imports for consumption |                      |         | Exports |                      |       |
|---------------|-------------------------|----------------------|---------|---------|----------------------|-------|
|               | Ore and dioxide         | Ferroalloy and metal | Total   | Ore     | Ferroalloy and metal | Total |
| 2000:         |                         |                      |         |         |                      |       |
| April         | 19,400                  | 39,800               | 59,300  | 164     | 967                  | 1,130 |
| January-April | 79,200                  | 163,000              | 242,000 | 894     | 4,280                | 5,170 |
| 2001:         |                         |                      |         |         |                      |       |
| January       | 23,400 3/               | 35,100               | 58,400  | 185     | 1,830                | 2,020 |
| February      | 11,900                  | 25,400               | 37,300  | 723 3/  | 383                  | 1,110 |
| March         | 24,600 3/               | 24,300 3/            | 48,900  | 425     | 645                  | 1,070 |
| April         | 23,100                  | 34,800               | 57,900  | 138     | 630                  | 768   |
| Total         | 83,000                  | 120,000              | 203,000 | 1,470   | 3,490                | 4,960 |

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and for exports from gross weights.

3/ All or part of these data have been referred to the U.S. Census Bureau for verification.

Source: U.S. Census Bureau.

TABLE 2  
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN APRIL 2001 1/

(Metric tons, unless otherwise specified)

| Source                 | Gross weight | Mn content | Customs value | Year to date |            |               |
|------------------------|--------------|------------|---------------|--------------|------------|---------------|
|                        |              |            |               | Gross weight | Mn content | Customs value |
| Australia              | 3,500        | 2,320      | \$1,400,000   | 13,500       | 8,960      | \$5,180,000   |
| Canada                 | --           | --         | --            | 36           | 24         | 8,200         |
| India                  | 7,660        | 4,830      | 3,090,000     | 21,200       | 13,500     | 8,460,000     |
| Kazakhstan             | 5,900        | 4,000      | 2,510,000     | 15,200       | 10,400     | 6,160,000     |
| Lithuania              | --           | --         | --            | 4,000        | 2,710      | 1,720,000     |
| Mexico                 | 2,920        | 1,910      | 1,350,000     | 6,120        | 4,010      | 2,860,000     |
| Norway                 | 800          | 483        | 462,000       | 3,800        | 2,310      | 2,200,000     |
| South Africa           | 9,930        | 6,610      | 3,780,000     | 29,400       | 19,700     | 11,000,000    |
| Spain                  | 600          | 371        | 407,000       | 600          | 371        | 407,000       |
| Total                  | 31,300       | 20,500     | 13,000,000    | 93,900       | 61,900     | 38,000,000    |
| Total, general imports | 31,300       | 20,500     | 13,000,000    | 93,900       | 61,900     | 38,000,000    |

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 3  
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN APRIL 2001 1/

(Metric tons)

| Source                                  | Gross weight | Mn content | Customs value | Year to date |            |               |
|---|--------------|------------|---------------|--------------|------------|---------------|
|   |              |            |               | Gross weight | Mn content | Customs value |
| <b>Low carbon:</b>                      |              |            |               |              |            |               |
| Canada                                  | --           | --         | --            | 36           | 29         | \$19,400      |
| China                                   | --           | --         | --            | 362          | 329        | 369,000       |
| Italy                                   | 128          | 111        | \$166,000     | 447          | 377        | 418,000       |
| Japan                                   | --           | --         | --            | 1            | 31         | 22,100        |
| Mexico                                  | 149          | 121        | 136,000       | 919          | 741        | 711,000       |
| Netherlands                             | --           | --         | --            | 21           | 17         | 18,700        |
| Norway                                  | --           | --         | --            | 335          | 268        | 310,000       |
| South Africa                            | 340          | 318        | 496,000       | 2,550        | 2,220      | 2,460,000     |
| Total, low carbon                       | 617          | 551        | 798,000       | 4,670        | 4,010      | 4,330,000     |
| Total, general imports of low carbon    | 617          | 551        | 798,000       | 4,670        | 4,010      | 4,330,000     |
| <b>Medium carbon, 1%-2% C:</b>          |              |            |               |              |            |               |
| China                                   | --           | --         | --            | 2,240        | 1,790      | 1,360,000     |
| Mexico                                  | 799          | 643        | 568,000       | 5,250        | 4,240      | 3,650,000     |
| South Africa                            | --           | --         | --            | 8,970        | 7,280      | 6,340,000     |
| Spain                                   | 700          | 568        | 536,000       | 700          | 568        | 536,000       |
| Total, m.c., 1%-2% C                    | 1,500        | 1,210      | 1,100,000     | 17,200       | 13,900     | 11,900,000    |
| Total, general imports of m.c., 1%-2% C | 1,500        | 1,210      | 1,100,000     | 17,200       | 13,900     | 11,900,000    |
| <b>High carbon:</b>                     |              |            |               |              |            |               |
| Australia                               | 1,110        | 861        | 414,000       | 11,500       | 8,820      | 4,530,000     |
| Brazil                                  | --           | --         | --            | 3,980        | 3,070      | 1,470,000     |
| Canada                                  | --           | --         | --            | 17           | 13         | 9,600         |
| France                                  | 11,200       | 9,000      | 5,330,000     | 14,200       | 11,300     | 6,400,000     |
| India                                   | --           | --         | --            | 2,350        | 1,780      | 892,000       |
| South Africa                            | 1,270        | 998        | 449,000       | 10,500       | 8,140      | 4,300,000     |
| Total, high carbon                      | 13,600       | 10,900     | 6,190,000     | 42,600       | 33,200     | 17,600,000    |
| Total, general imports of high carbon   | 13,600       | 10,900     | 6,190,000     | 42,600       | 33,200     | 17,600,000    |
| Grand total                             | 15,700       | 12,600     | 8,090,000     | 64,400       | 51,000     | 33,800,000    |
| Grand total, general imports            | 15,700       | 12,600     | 8,090,000     | 64,400       | 51,000     | 33,800,000    |

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS OF MANGANESE ORE (20% OR MORE Mn) IN APRIL 2001 1/ 2/

(Metric tons)

| Source               | 20% - 47% Mn |            | 47% or more Mn |            | Total        |            |
|----------------------|--------------|------------|----------------|------------|--------------|------------|
|                      | Gross weight | Mn content | Gross weight   | Mn content | Gross weight | Mn content |
| Brazil               | 7,700        | 3,460      | --             | --         | 7,700        | 3,460      |
| Gabon                | 4,000        | 1,760      | 32,000         | 16,700     | 36,000       | 18,500     |
| Total                | 11,700       | 5,220      | 32,000         | 16,700     | 43,700       | 21,900     |
| <b>Year to date:</b> |              |            |                |            |              |            |
| Brazil               | 7,700        | 3,460      | --             | --         | 7,700        | 3,460      |
| Gabon                | 14,300       | 6,310      | 118,000        | 65,500     | 132,000      | 71,800     |
| Mexico               | 1,680        | 648        | --             | --         | 1,680        | 648        |
| Morocco              | --           | --         | 20             | 11         | 20           | 11         |
| Total                | 23,700       | 10,400     | 118,000        | 65,500     | 141,000      | 75,900     |

-- Zero.

1/ Quantities for general imports and imports for consumption are identical.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE AND MANGANESE METAL IN APRIL 2001 1/

(Metric tons, gross weight, unless otherwise specified)

| Source                 | Manganese dioxide |               |              |               | Manganese metal |              |          |              |
|------------------------|-------------------|---------------|--------------|---------------|-----------------|--------------|----------|--------------|
|                        | Quantity          | Customs value | Year to date |               | Unwrought       |              | Other    |              |
|                        |                   |               | Quantity     | Customs value | Quantity        | Year to date | Quantity | Year to date |
| Australia              | 880               | \$1,260,000   | 6,580        | \$10,600,000  | --              | --           | --       | 2            |
| Belgium                | 46                | 71,000        | 218          | 305,000       | --              | --           | --       | --           |
| Canada                 | --                | --            | --           | --            | --              | --           | --       | 1            |
| China                  | 149               | 147,000       | 381          | 372,000       | 360             | 818          | 18       | 34           |
| France                 | --                | --            | --           | --            | --              | --           | 2        | 10           |
| Germany                | 22                | 102,000       | 39           | 141,000       | 157             | 656          | --       | 9            |
| Greece                 | --                | --            | 563          | 728,000       | --              | --           | --       | --           |
| India                  | --                | --            | 1            | 3,130         | --              | --           | 37       | 132          |
| Ireland                | 599               | 806,000       | 2,350        | 3,210,000     | --              | --           | --       | --           |
| Japan                  | 210               | 372,000       | 226          | 405,000       | --              | --           | 3        | 3            |
| Mexico                 | --                | --            | --           | --            | --              | --           | 1        | 49           |
| Morocco                | --                | --            | 1            | 2,530         | --              | --           | --       | --           |
| Netherlands            | --                | --            | --           | --            | --              | --           | 13       | 24           |
| Russia                 | --                | --            | --           | --            | --              | --           | --       | 385          |
| South Africa           | 41                | 64,300        | 1,470        | 2,080,000     | 887             | 4,030        | --       | --           |
| Spain                  | --                | --            | --           | --            | 82              | 112          | --       | --           |
| United Kingdom         | --                | --            | --           | --            | 10              | 69           | --       | (2/)         |
| Total                  | 1,950             | 2,820,000     | 11,800       | 17,900,000    | 1,500           | 5,690        | 76       | 649          |
| Total, general imports | 1,950             | 2,820,000     | 11,800       | 17,800,000    | 1,500           | 5,610        | 76       | 709          |

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Note: Imports for consumption of metallic manganese waste and scrap totaled 78 tons, all of which was from Canada, to give a year-to-date total of 407 tons.

Source: U.S. Census Bureau.

TABLE 6  
U.S. EXPORTS OF MANGANESE ORE (20% OR MORE Mn), FERROMANGANESE,  
SILICOMANGANESE, AND MANGANESE METAL BY COUNTRIES OF DESTINATION IN 2001 1/

(Metric tons, gross weight)

|                    | Manganese ore |              | Ferromanganese,<br>2% or less C |              | Silicomanganese |              | Manganese metal 2/ |              |
|--------------------|---------------|--------------|---------------------------------|--------------|-----------------|--------------|--------------------|--------------|
|                    | April         | Year to date | April                           | Year to date | April           | Year to date | April              | Year to date |
| Australia          | --            | 55           | --                              | --           | --              | 5            | --                 | 2            |
| Belgium            | --            | --           | --                              | --           | --              | --           | --                 | 19           |
| Brazil             | --            | 46           | --                              | --           | --              | 15           | --                 | --           |
| Canada             | 241           | 825          | 59                              | 340          | --              | 132          | 7                  | 19           |
| Chile              | --            | 3            | --                              | --           | --              | --           | --                 | --           |
| Finland            | --            | --           | --                              | --           | --              | --           | --                 | 18           |
| France             | --            | --           | --                              | --           | --              | --           | 10                 | 29           |
| Germany            | --            | 395          | --                              | --           | --              | --           | (3/)               | 58           |
| Hong Kong          | --            | --           | --                              | --           | --              | --           | --                 | 1            |
| Ireland            | --            | 137          | --                              | --           | --              | --           | --                 | --           |
| Italy              | 19            | 78           | --                              | --           | --              | --           | --                 | 1            |
| Japan              | --            | --           | --                              | --           | --              | --           | --                 | 158          |
| Korea, Republic of | --            | --           | --                              | --           | --              | --           | 2                  | 5            |
| Mexico             | --            | --           | --                              | 65           | 219             | 2,330        | 30                 | 61           |
| Netherlands        | --            | --           | --                              | --           | 9               | 14           | --                 | 162          |
| Norway             | --            | 139          | --                              | --           | --              | --           | --                 | --           |
| Saudi Arabia       | --            | 5            | --                              | --           | --              | --           | --                 | --           |
| Singapore          | --            | --           | --                              | 4            | --              | --           | --                 | --           |
| Spain              | --            | --           | --                              | --           | --              | 8            | --                 | --           |
| Sweden             | --            | 19           | --                              | --           | --              | --           | 18                 | 36           |
| Switzerland        | 15            | 34           | --                              | --           | --              | --           | --                 | --           |
| Taiwan             | --            | 53           | --                              | --           | --              | --           | --                 | --           |
| United Kingdom     | --            | 1,140        | --                              | --           | --              | --           | --                 | --           |
| Venezuela          | --            | 16           | --                              | --           | --              | --           | --                 | --           |
| Total              | 276           | 2,940        | 59                              | 410          | 228             | 2,500        | 67                 | 568          |

-- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Includes manganese-aluminum, some other alloys, and waste and scrap.

Note: Exports of ferromanganese with more than 2% carbon totaled 462 tons, of which 456 tons went to Canada and 6 tons went to France, to give a year-to-date total of 1,200 tons.

Source: U.S. Census Bureau.

TABLE 7  
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS IN APRIL 2001, BY CLASS 1/

| Class   | Gross weight<br>(metric tons) | Value 2/<br>(thousands) | Principal sources<br>and destinations:<br>gross weight (metric tons);<br>value 2/ (thousands) | Year to date                  |                         |   |
|---|-------------------------------|-------------------------|---|-------------------------------|-------------------------|---|
|   |                               |                         |   | Gross weight<br>(metric tons) | Value 2/<br>(thousands) | Principal sources<br>and destinations:<br>gross weight (metric tons);<br>value 2/ (thousands) |
| <b>Imports for consumption:</b>                           |                               |                         |   |                               |                         |   |
| Manganese oxides other than dioxide                       | 65                            | \$121                   | South Africa 36; \$89   | 316                           | \$492                   | South Africa 191; \$280   |
| Sulfates, basket category,<br>including manganese sulfate | 2,900                         | 1,750                   | Mexico 2,250; \$999   | 12,600                        | 7,310                   | Mexico 5,720; \$2,940   |
| Potassium permanganate                                    | 122                           | 235                     | Czech Republic 68; \$133  | 597                           | 1,160                   | Czech Republic 299; \$592   |
| Manganites, manganates, and<br>other permanganates        | 1                             | 18                      | Canada 1; \$18  | 33                            | 146                     | Germany 17; \$113   |
| <b>Exports:</b>   |                               |                         |   |                               |                         |   |
| Manganese dioxide   | 561                           | 734                     | Canada 203; \$73  | 1,520                         | 1,890                   | Canada 763; \$321   |
| Manganese oxides other than dioxide                       | 323                           | 185                     | Canada 172; \$66  | 2,430                         | 2,920                   | Canada 910; \$362   |
| Sulfates, basket category,<br>including manganese sulfate | 2,430                         | 896                     | Canada 1,990; \$439   | 9,520                         | 5,610                   | Canada 7,470; \$1,860   |
| Potassium permanganate                                    | 44                            | 106                     | Germany 30; \$74  | 470                           | 1,000                   | Spain 215; \$388  |
| Manganites, manganates, and<br>other permanganates        | 38                            | 366                     | Mexico 20; \$248  | 136                           | 791                     | Nicaragua 34; \$66  |

1/ Data are rounded to no more than three significant digits.

2/ For imports, Customs value; for exports, f.a.s. value.

Source: U.S. Census Bureau.